Web-Based Information Services in Selected Academic Libraries, Nigeria

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Abstract: This work investigated the web-based information services in selected academic libraries, Nigeria. The descriptive survey research design was used for the study, as well as the total enumeration sampling technique. The study's data was gathered through the use of a questionnaire. Academic librarians from Ambrose Alli University Library in Ekpoma and John Harris Library at the University of Benin in Benin City, both in Edo State, comprise the study's population. The study's respondents are one hundred (100) selected academic librarians from Ambrose Alli University Library and John Harris Library. This research study's data analysis method was simple percentages presented in tables, mean and standard deviation. Findings revealed, among other things, that there are reasons for adopting web-based services in academic libraries. Furthermore, the findings revealed some of the challenges that academic libraries face when implementing web-based library services. It was suggested, among other things, that government and academic library parent institutions adequately fund the library so that it can subscribe to online databases and acquire appropriate software that promotes the adoption and use of web-based services. It was also suggested that the government adequately fund the library in order to enable the acquisition of necessary technological equipment and infrastructure. It was also suggested that library staff be open to new trends and embrace the use of new technologies for information service delivery in the library. Academic librarians must be open to new technological trends and embrace technological advancements.

Keywords: Web-based information services, academic library web services, academic librarians.

INTRODUCTION

Over the last two decades, information and communication technology (ICT) has permeated every aspect of human life, including business, government, and education. Because of the use of ICT and the constant advancement of technology, education has become a learning-centered system. According to Noor-Ul-Amin (2013), ICT plays a significant role in 21st century education. The facts that are compelling pedagogy and society to want to be on the same level with ICT include quick access to information, dependable communication methods, a convenient way of learning, cost-effectiveness, and the improvement of learning and teaching approaches (Chewe and Chitumbo, 2012). According to Idhalama & Fidelis (2020), information technology is any technology that is used to process, collect, protect, and store information. The term information and communication technology (ICT) refers to any practical method for managing digital information, such as computers, network hardware, communication lines, and all necessary software. This includes any technology, telephony, electronic media, and method that

allows the handling and transmission of audio and video signals, as well as any function that regulates and deals with communication transmission over the network of the technologies (Kolaric & Rendulic, 2011). The great advances made by modern science and technology in this digital age have accelerated information exchange and distribution. According to Kumar (2016), technological advancement and the birth of the internet created many opportunities and challenges for modern-day libraries, as well as rapid progress in information handling, storing, organizing, and communicating with users. Because of the tremendous growth and continuous development of technology, librarians' roles are becoming more responsive in making users techno-savvy. Surprisingly, many organizations are now using web-based information services for their day-to-day business operations, including mail systems, file systems, and network devices like firewalls and routers (Dong, 2018). This advancement has spread to the educational sector; the use of a web-based environment has given librarians and information professionals new and useful roles. Prior to the rise of technology, the primary role of information workers was to look after books, but now they serve as students' advocates. Academic librarians and information professionals' new roles include teaching students how to use online resources, organizing workshops, book talks, and debates, and providing web-based services to web users (Bhardwaj and Walia, 2012). Furthermore, Idhalama**,** Udem & Dime, (2020) believe that technological advancements have influenced not only the formats and sources of information, but also how and where library services are provided. Libraries and their resources have now made their way to the virtual world of the Internet. As a result, library users can access the resources from locations other than the physical library (via a digital library or Web-based search engines). Similarly, librarians must strive to gain technical knowledge in order to effectively use digital devices. According to Campbell (2014), internet library service requires many of the same qualities as traditional references: accuracy, promptness, courtesy, and an understanding of the information need. It provides librarians with the convenience, precision, and timely delivery of information services to users with the necessary skills (Forrester and Jane, 2014). While not having a face-to-face encounter may be a disadvantage, there are many advantages to this new medium, the most important of which is that many more users can be helped by using electronic library services. According to the findings of a study conducted by Bhatnagar (2011), the following is the rationale for establishing web-based library services:

➢ Ensuring that user needs and available information sources are always appropriately matched.

➢ Making those information sources available to the user in a timely and appropriate manner.

➢ Ensuring that the information provided is of high quality, accurate, and relevant.

➢ If necessary, assisting the user in interpreting the materials.

➢ Raising user awareness of new services and information sources as they become available.

➢ Personalized guidance and support for users as they develop their information search and application skills.

As more libraries transition to providing services via the web, improved access to remote library collections makes the use of electronic information resources more realistic and appealing. Using web-based technologies, traditional online services were transformed into internet-based online services. Four generations of information retrieval tools have passed from traditional online services to today, assisting users in searching the World Wide Web (Bhatnagar, 2011). Many libraries and library consortia are expanding their services to include virtual reference in order to reach users who access the library through their computers. Users can now submit their queries to the library from anywhere in the world at any time. Web-based services, digital library services, internet library services, and electronic library services all have similar meanings.

Statement of the Problem

We live in the digital age, and information plays a primary role in many digital cases. The digital

network is the primary means of sharing information. As a result, information can be easily created, stored, organized, accessed, and transmitted (Chewe and Chitumbo, 2012). Similarly, libraries must embrace this novel technological advancement in order to efficiently satisfy their patrons who are digital natives – digital natives are people who grew up in the digital age, growing up with computers, the internet, and video game consoles, and later mobile phones, social media, and tablet computers (Wikipedia, 2021). Although there are challenges to running a web-based information service in a library, the opportunities and benefits are plentiful. On this premise, web-based information services in selected academic libraries, Nigeria

Objectives of the Study

The general objective of this study is to investigate the web-based information services in selected academic libraries, Nigeria. The specific objectives are to:

1. assess the extent of use of web-based library services and facilities available in the academic libraries by librarians,

2. find out the different purposes of adopting web-based library services in academic libraries,

3. identify the problems faced by academic librarians in adopting web based library services in academic libraries, and

4. suggest measures for improvement of existing web-based resources and services in an academic libraries.

Research Questions

1. What is the extent of use of web-based library services and facilities available in the academic libraries by librarians?

2. What are the different purposes of adopting web-based library services in academic libraries?

3. What are the problems faced by academic librarians in adopting web based library services in academic libraries?

4. What are the measures for improvement of existing web-based resources and services in academic libraries?

Web Products and Services Available in Academic Libraries

As more libraries transition to digital services, improved access to remote library collections makes the use of electronic information resources more realistic and appealing. Using web-based technologies, traditional online services had evolved into internet-based online services (White, 2011). Users can now access a wide range of textual information resources. OPAC, Gateways, Portals, Subject Portals, Electronic Journals, Online Databases, Subject Directories, and Search Engines are some of the web-based reference resources and services available for accessing information from libraries. The types of information covered by these resources overlap significantly, making it difficult to distinguish between some of them. A library should have a good collection of these resources in well-organized pages, such as selected Web links, subscription resources, and library materials, in order to provide better services to their users. Many libraries and organizations are collaborating to provide digital reference services. Existing library consortiums are expanding their shared services and library networks to include digital references. Some regional library consortiums allow member libraries to share reference questions with one another via the Internet and other technologies.

Use of Web-Based Library Services and Facilities by Librarians

Web-based Library Services are library services that are delivered over the Internet using a library website as a portal and an integrated library management system. Web-based library services for users include online textbooks, databases, tutorials, and a virtual library of links to other useful resources. It offers the unique service of linking to full-text articles as well as integrating library housekeeping operations, library policies, staff listings, and so on for timely

assistance. According to White (2011), it is "an information access service in which users ask questions via electronic means, such as email or web forms." Users are accustomed to the Web's dynamic and interactive nature, as well as social networking tools. Many of them rely on Web-based tools to find the information they require (Wang, 2009). It is therefore critical for university libraries and librarians to design, develop, enhance, implement, and deliver world-class web-based library services, resources, and instructions at the fingertips of library users, as well as "devoting resources to strengthen support in the core areas of teaching and research," as well as identify relevant information and web services based on user feedback and improve existing services using web technology as the delivery modality (Bhatnagar and Deshmukh, 2016). Feldman and Strobel (2012) argue that initiating self-service circulation or librarian-mediated online reference is critical for advancing web-based services. These cutting-edge services are made possible by the internet. It is not an exaggeration to say that academic libraries are increasingly utilizing web-based library services and facilities. When compared to other types of libraries, academic libraries are quickly becoming the major players in adopting and incorporating Web 2.0 applications into their services, according to Xu, Ouyang, and Chu (2009). Academic libraries, for example, now use RSS feeds to inform library users about new library activities, whereas blogs allow the library to aggregate knowledge from users, and setting up a subject-based blog provides constructive resources to assist readers with researching and utilizing this technology (Kim and Abbas, 2010). Similarly, academic libraries now use web-based library tutorials, which are regarded as the hallmark of good web-based instruction and provide realistic learning environments (Su and Kuo, 2010). Virtual library tours, which use new technologies, are also replacing image maps on main campus websites (Bhatnagar, 2015). However, it is worth noting that the potential of web services offers many benefits to the library community; however, the majority of these benefits will only be realized if web services are standardized; however, the key issues involve the opportunities, challenges, and future developing trends of delivering dynamic and distributed web-based library information resources, services, and instructions for library users in the digital age (Lillie, 2016). It is clear that libraries continue to provide their customers with unique and valuable services. The mere provision of such web-based services, however, is not an end in itself. In order to create a positive environment for change, libraries must exercise proper awareness, orientation, and training of such newly introduced services (Idhalama, Ikenwe & Omigie, 2020)..

Purposes for Adopting Web-based Library Services in Academic Libraries

Many of the same qualities are required for internet library service as they are for traditional references: accuracy, promptness, courtesy, and an understanding of the information need. It allows users to access information on their own time, saving them money and time, and giving them new options for answering reference questions. These services are not limited by traditional opening hours and can be provided on a 24-hour, seven-day-a-week basis known as 24/7. While not having a face-to-face encounter may be a disadvantage, there are many advantages to this new medium, the most important of which is that many more users can be helped by using electronic library services (White, 2011). According to Borgman (2010), there are numerous reasons for libraries to adopt and use web-based services. He believes that ensuring the needs of users and the available information sources are always appropriately matched; delivering those information sources to the user in a timely and appropriate manner; ensuring the information provided is of high quality, accurate, and appropriate; assisting the user in interpreting the materials, if necessary; promoting user awareness of new services and information sources as they develop; and providing users with individualized guidance and assistance are all important. University libraries in developed educational, library, and infrastructure systems use the web for both library operations and services. This is intended to ensure that large numbers of library users have quick and easy access to relevant, accurate, and current information from both remote and immediate databases, thereby facilitating learning, teaching, and research in universities. Idhalama & Ifidon (2019) emphasize that in order for libraries to function effectively, optimally and most effectively in the modern era, manual processes or methods must give way to

information and communication technologies (ICT) and a computer-driven environment. Furthermore, Okiy (2015) discovered that the adoption of web-based services is demanded by users and is the way for developing-country academic libraries to provide the services expected in the current electronic age. According to Mahmood and Khan (2017), work in the library and information profession has been marked by rapid change and new skill requirements in recent years. Adoption and application of web-based services in library operations necessitate professional motivation for continuing education and the acquisition of new LIS skills; training and retraining on the part of practicing librarians. As a result, academic librarians must use computer training centers to keep their technical knowledge up to date (Adeleke and Olorunsola, 2010). Libraries, too, are web technologies for book and serial acquisitions, money transfer, classification and cataloguing, reference service, user orientation service, circulation service, inter library loan, document delivery service, electronic contents, e-mail and chat assistance, web 2.0 interactive sharing, bibliographic service, and photocopies services (Adeleke and Olorunsola, 2010). These opportunities not only allow libraries to provide users with quick information, but they also benefit remote libraries. According to Ramzan and Singh (2009), the internet is the greatest wonder of the twentieth century. Fitzgerald and Savage (2014) discussed the impact of the World Wide Web on library service delivery logistics. The availability of e-mail and internet facilities in academic libraries provides a broad range of global access to information that is both geographically and timely. They noted the rapid growth of that blogs and their influences on libraries users experiences.

Problems Faced by Academic Librarians in Adopting Web Based Library Services

Many academic library patrons' information needs are shifting toward a preference for online information (Okello-Obura, 2010). The advancement of ICT devices, combined with a significant increase in library users' access to electronic resources, has changed the face of informatics and how people communicate, interact, and access information (Swain & Panda, 2009; Singh, 2009). Academic libraries around the world are transitioning from the traditional delivery of printed information to electronic information in order to better serve their users, who are increasingly adept at using emerging technologies to access information. However, operating a virtual or web-based library service in a country like Nigeria can be difficult and time-consuming. In other words, academic librarians face a number of challenges when it comes to implementing web-based library services, some of which are discussed below. In their study, Iwhiwhu, Ruteyan, and Eghwubare (2010) reported that libraries in Nigeria were unable to provide web-based services due to a lack of funds to purchase the necessary technological infrastructures. Similarly, Chisenga (2015) discovered that many libraries in Sub-Saharan Africa lack the funds to acquire and maintain library systems. The findings also revealed that the majority of libraries surveyed do not have the funds to purchase library systems, and those that have acquired commercial library systems or managed to automate some or all of their operations do not have the funds to upgrade and maintain their library systems (Chisenga, 2015). When libraries fail or are unable to pay for either maintenance or license fees for software systems, they lose access to technical support and necessary updates from their vendors. Because of this difficulty, most libraries stop subscribing to or abandon the software system entirely, opting instead for a less expensive software system, which may have an impact on the overall system efficiency in the libraries. Internet-based services Integration in academic libraries necessitates a large number of ICT facilities to support the integration, and several studies have found that these ICT facilities are frequently insufficient (Rosengberg, 2005; Saxena & Dubey, 2014). In support of this, Chaputula and Mutula (2018) discovered in their study in Malawi that, while the majority of the libraries studied were willing to offer web-based services, they still required more desktop computers, tablet computers, and servers with greater capacity. Due to funding constraints, some libraries indicated that they were forced to use less expensive and insufficient ICT infrastructure. Many of them, once again, mentioned that they were using outdated servers that needed to be replaced with modern ones. Another barrier to the adoption of web-based services in academic libraries is privacy. This is because third parties, such as law

enforcement agencies and those who commit identity theft, could exploit client personal information. As the web expands its services, it exposes users to potential invasions of privacy.

Measures for Improvement of Existing Web-Based Resources and Services in Academic Libraries

If access to and retrieval of e-resources and services is ineffective, the goal of academic web-based library services is limited. Access to and retrieval of digital information resources, on the other hand, has remained a growing concern for e-librarians. Taylor and Francis (2013) identified areas where improvement and innovation are required to facilitate access to and retrieval of e-resources. They proposed developing and implementing metadata standards to indicate how 'open' content is. improved identification of free articles in hybrid journals; accessibility and archiving of free content; Discovery systems' comprehensive indexing of high-quality free resources; consistent usage statistics for free online content across publishers; improved integration of free content with link resolvers; expansion of trusted repositories linking to free content improved user interfaces for accessing content surfaced in libraries; more information literacy training and support for students and faculty; development of metrics for assessing the impact of content on institutional performance. Academic libraries must maintain their dual convenience of use collection development policies in a hybrid statistics of use environment where printed and electronic resources must be integrated to meet the diverse needs of the communities they are expected to serve. Libraries must change and adapt to the new environment while keeping future user needs in mind.

Methodology

The descriptive survey research design is used in this study. According to Adeyemo (2006), as cited in Olowe (2011), descriptive survey research design is one that critically examines opinions, attitudes, subjects, or ideas with the goal of providing accurate information about the phenomenon being studied. This study's population consists of academic librarians at Ambrose Alli University Library in Ekpoma and John Harris Library at the University of Benin in Benin City, both in Nigeria's Edo State. This study's sample will include one hundred (100) academic librarians from Ambrose Alli University Library and John Harris Library. The Total Enumeration Sampling Technique was used for sampling. The copies of the retrieved questionnaires were analyzed using simple percentages presented in tables.

DATA REPRESENTATION AND ANALYSIS

This part entails the presentation of data analysis as they relate to this study. The data were generated through the use of questionnaire. A total of one hundred (100) respondents were used as sample for the population for this study. Hence, 100 (50 each) questionnaires were administered to selected academic librarians of Ambrose Alli University Library and John Harris Library. 82 were however successfully retrieved giving a total 82% response rate.

Table 1: What is the extent of use of web-based library services and facilities available in academic libraries by librarians?

S/N	EXTENT OF USE	VHE	HE	LE	VLE	M	STD.	DECISION
1.	OPAC (Online Public Access Catalog)	12 (14.6%)	70 (85.4%)	-	-	3.51	2.05	HE
2.	Internet Subject Gateways (subject entrances (clearing houses) to quality assessed Internet resources)	22 (26.8%)	60 (73.2%)	-	-	3.32	1.95	HE
3.	Portals	4 (4.9%)	56 (68.3%)	12 (14.6%)	10 (12.2%)	2.85	1.45	HE
4.	Electronic Journals	17	65	-	-	3.44	1.98	HE

S/N	ITEMS					M	STD	
		(20.7%)	(79.3%)					
5.	Online Databases	4 (4.9%)	78 (95.1%)	-	-	3.42	1.97	HE
6.	Search Engines	38 (31.2%)	44 (68.8%)	-	-	3.40	1.96	HE
7.	Subject Directories	21 (25.3%)	61 (74.4%)	-	-	3.31	1.96	HE
8.	Ask-A-Librarian	20 (24.4%)	62 (75.6%)	-	-	3.32	1.95	HE
9.	Bulletin Boards	9 (10.2%)	16 (19.5%)	52 (63.4%)	5 (6.1%)	2.06	0.96	LE
10.	Electronic Selective Dissemination of information	22 (26.8%)	60 (73.2%)	-	-	3.32	1.95	HE
11.	Social Media Platforms	65 (79.3%)	17 (20.7%)	-	-	3.44	1.98	HE

The table above shows that item 1, 2, 3, 4, 5, 6, 7, 8, 10 and with mean score ($\overline{X}$ = 3.51, 3.32, 2.85, 3.44, 3.42, 3.40, 3.31, 3.32, 3.32, and 3.44 respectively are web-based library services and facilities available in academic libraries base on the fact that the mean score is above the average of 2.5, while item 9 with mean score ($\overline{X}$ = 2.06) is not available as the mean score is below the average mean of 2.5

Table 2: What are the different purposes of adopting web-based library services in academic libraries?

S/N	ITEMS	SA	A	D	SD	M	STD.	DECISION
1.	For research and other academic purposes	-	82 (100%)	-	-	3.51	2.05	Agreed
2.	For easy location of library materials through the use of library online catalogue and database	-	82 (100%)	-	-	3.51	2.05	Agreed
3.	For selecting and acquisition of library resources where the users can request the resources	-	82 (100%)	-	-	3.51	2.05	Agreed
4.	To provide demonstration on how to access electronic resources with videos hosted online	12	70	-	-	3.51	2.05	Agreed
5.	For timely dissemination of information to library users via social media handles	82 (100%)	-	-	-	3.51	2.05	Agreed
6.	For long-term preservation of library information resources through the use of online database	-	82 (100%)	-	-	3.51	2.05	Agreed
7.	To limit physical, face-to-face interaction in the library	-	82 (100%)	-	-	3.51	2.05	Agreed
8.	To encourage the acquisition of technical knowhow by academic librarians	-	82 (100%)	-	-	3.51	2.05	Agreed

| 9. | For precision and accuracy in information processing | - | 82 (100%) | - | - | 3.51 | 2.05 | Agreed |
| 10. | To aid remote access of library products and services | 82 (100%) | - | - | - | 3.51 | 2.05 | Agreed |

Table 2 revealed that all the respondents agreed that items 1 – 10 are the different purposes of adopting web-based library services in academic libraries, which includes for research and other academic purposes, for easy location of library materials through the use of library online catalogue and database, for selecting and acquisition of library resources where the users can request the resources, to provide demonstration on how to access electronic resources with videos hosted online, for timely dissemination of information to library users via social media handles, for long-term preservation of library information resources through the use of online database, to limit physical, face-to-face interaction in the library, to encourage the acquisition of technical knowhow by academic librarians, for precision and accuracy in information processing and to aid remote access of library products and services are some of the purposes of adopting web-based library services in academic libraries.

Table 3: What are the challenges faced by academic libraries in adopting web based library services in academic libraries?

S/N	ITEMS	SA	A	D	SD	M	STD.	DECISION
1.	Inaccessibility of online information resources	9 (10.2%)	52 (63.4%)	16 (19.5%)	5 (6.1%)	2.06	0.96	Disagreed
2.	Poor funding of academic libraries	-	82 (100%)	-	-	3.51	2.05	Agreed
3.	Lack of technical knowhow of academic librarians	9 (10.2%)	16 (19.5%)	52 (63.4%)	5 (6.1%)	2.06	0.96	Disagreed
4.	Lack of digital infrastructure in the library	11 (13.4%)	71 (86.6%)	-	-	3.50	2.06	Agreed
5.	Poor or epileptic power supply	22 (26.8%)	60 (73.2%)	-	-	3.32	1.95	Agreed
6.	Unwillingness of academic library parent bodies to embrace novel technological trends	-	82 (100%)	-	-	3.51	2.05	Agreed
7.	Technophobia on the part of librarians	15 (18.3%)	40 48.9%)	12 (14.6%)	15 (18.3%)	2.60	1.52	Agreed
8.	Awareness level of academic librarians of web based library services	10 (12.2%)	60 (73.2%)	8 9.8%)	4 (4.9%)	3.05	1.85	Agreed
9.	Lack of implementation of policies that support migration of academic libraries to web-based services	65 (79.3%)	17 (20.7%)	-	-	3.44	1.98	Agreed
10.	Non-availability of suitable software	-	82 (100%)	-	-	3.51	2.05	Agreed
11.	High cost of	-	82	-	-	3.51	2.05	Agreed

subscribing to online databases		(100%)					

From table 3, majority of the respondents agreed that items 1, 2, 4, 5, 6, 7, 8, 9, 10 and 11 of table 3 are some of the challenges faced by academic libraries in adopting web based library services in academic libraries as the mean scores is above an average of 2.5 while majority of the respondents disagreed with item 3 as the mean is below the average of 2.5.

Table 4: What are the measures for improvement of existing web-based resources and services in academic libraries?

S/N	ITEMS	SA	A	D	SD	M	STD.	DECISION
1.	Frequent updating of library online database with current information on the use of web applications	-	82 (100%)	-	-	3.51	2.05	Agreed
2.	Current Awareness Services (CAS) on the availability of web-based resources in the library to encourage usage	-	82 (100%)	-	-	3.51	2.05	Agreed
3.	Adequate funding of academic libraries to enable purchase of relevant infrastructure	-	82 (100%)	-	-	3.51	2.05	Agreed
4.	Training programmes should be organized for academic librarians	-	82 (100%)	-	-	3.51	2.05	Agreed
5.	Academic librarians should be willing to embrace novel technological trends	-	82 (100%)	-	-	3.51	2.05	Agreed
6.	Stable electricity supply should be provided in academic libraries	-	82 (100%)	-	-	3.51	2.05	Agreed
7.	Digital devices (e.g. computers, Storage Devices, etc.) should be provided for the library	-	82 (100%)	-	-	3.51	2.05	Agreed
8.	Suitable Software for library automation should be purchased	-	82 (100%)	-	-	3.51	2.05	Agreed
9.	Academic libraries parent bodies should implement policies that support library automation	-	82 (100%)	-	-	3.51	2.05	Agreed
10.	Employment of web or tech-savvy personnel in the library	-	82 (100%)	-	-	3.51	2.05	Agreed

From table, majority of the respondents agreed that items 1 – 10 of table 4 are some of the measures for improvement of existing web-based resources and services in academic libraries.

Discussion of Findings

Findings revealed that academic libraries use OPAC, Internet Subject Gateways, Electronic Journals, Online Databases, Search Engines, Ask-A-Librarian, Electronic Selective Dissemination of Information, and Social Media Platforms. This is consistent with the findings of Xu, Ouyang, and Chu (2009), who believe that academic libraries are quickly overtaking other types of libraries in terms of adopting and incorporating Web 2.0 applications into their services.

According to Su and Kuo (2010), academic libraries now use web-based library tutorials, which are considered the hallmark of good web-based instruction and provide realistic learning arenas.

Also, it was revealed that the purposes of adopting web-based library services in academic libraries include; for research and other academic purposes, for easy location of library materials through the use of library online catalogue and database, for selecting and acquisition of library resources where the users can request the resources, to provide demonstration on how to access electronic resources with videos hosted online, for timely dissemination of information to library users via social media handles, for long-term preservation of library information resources through the use of online database, to limit physical, face-to-face interaction in the library, to encourage the acquisition of technical knowhow by academic librarians, for precision and accuracy in information processing and to aid remote access of library products and services are some of the purposes of adopting web-based library services in academic libraries. In line with this finding, Borgman (2010) stated that there are many purposes for the adoption and use of web based services in the library. He opined that ensuring the needs of users and the accessible information sources are suitable matched at all times; delivering those information sources to the user in a timely and appropriate fashion; ensuring the information provided is high quality, accurate and appropriate; assisting the user in interpreting the materials, if necessary; promoting user awareness of new services and information sources as they develop; providing users with individualized guidance and support as they build their information search and application skills amongst others, are some of the reasons for the adoption of web based library services. This also agrees with Adeleke and Olorunsola (2010)who opined that libraries are using web technologies for book and serial acquisitions, money transition, classification and cataloguing, reference service, user orientation service, circulation service, inter library loan, document delivery service, electronic contents, e-mail and chat assistance, web 2.0 interactive sharing, bibliographic service and photocopies services.

Furthermore, findings revealed that inaccessibility of online information resources, poor funding of academic libraries, lack of technical knowhow of academic librarians, lack of digital infrastructure in the library, poor or epileptic power supply, unwillingness of academic library parent bodies to embrace novel technological trends, technophobia on the part of librarians, awareness level of academic librarians of web based library services, lack of implementation of policies that support migration of academic libraries to web-based services, non-availability of suitable software and high cost of subscribing to online databases are some of the challenges faced by academic libraries in adopting web based library services in academic libraries. Adeniran and Unuigboje (2018) opined that some academic libraries in Nigeria lack the full technology needed to run an efficient and functional virtual library services. This is one of the major problems that academic librarians face in Nigeria face adopting a web based library services. In the same vein, Fabunmi (2009) stated that, the virtual library relies on power and computer networks in order to be available for use; therefore, the problem of inadequate power supply poses as a major challenge to academic librarians in adopting a web based library services. In conformity with this findings, Fabunmi, (2009) stated that, web technology skills are needed to maintain web servers that host locally digitized materials and other digital resources hosted remotely as well as maintaining proxy access to restricted resources. It is very challenging for academic libraries to operate a web based library or adopt a web based library services without the necessary and required skills and technical resources at their disposal.

Finally, findings revealed that frequent updating of library online database with current information on the use of web applications, Current Awareness Services (CAS) on the availability of web-based resources in the library to encourage usage, adequate funding of academic libraries to enable purchase of relevant infrastructure, organizing training programmes for academic librarians, willingness of academic librarians to embrace novel technological trends, provision of stable electricity supply in academic libraries, provision of digital devices (e.g. computers, storage devices, etc.) for the library, purchase of suitable software for library automation, implementation of policies that support library automation in academic libraries by

parent bodies and employment of web or tech-savvy personnel in the library are some of the measures for improvement of existing web-based resources and services in academic libraries. This agrees with the findings of Margam (2012) who carried out a study on use of web-based library services in selected university libraries in India. He found out that some of the ways and means for improving/strengthening the web-based library services rendered by their libraries include updating web pages frequently, content based book services, more hyperlinks to web-based library services, facility to upload content by users, higher bandwidth and wireless connectivity, institutional archives of faculty publications, simplification of administrative procedures to make the better use of web-based library services, all back-volumes of journals should be available online and digital literacy programs and more web-based tutorials for users.

Summary of Findings

Based on the research conducted, below are the summary of the major findings:

1. Findings shows that web products which include OPAC, Internet Subject Gateways, Electronic Journals, Online Databases, Search Engines, Ask-A-Librarian, Electronic Selective Dissemination of information and Social Media Platforms are used in high extent in academic libraries.

2. Findings further revealed that there are purposes of adopting web based services in academic libraries, which include, amongst others, for research and other academic purposes, for easy location of library materials, for selection and acquisition of library resources, to encourage the acquisition of technical knowhow by academic librarians, for precision and accuracy in information processing, etc.

3. Furthermore, findings revealed some of the challenges faced by academic libraries in adopting web based library services which includes poor funding of academic libraries, lack of technical knowhow of academic librarians, lack of digital infrastructure in the library, poor or epileptic power supply, unwillingness of academic library parent bodies to embrace novel technological trends, etc.

4. Finally, findings of the study revealed some of the measures for improvement of existing web-based resources and services in academic libraries, which amongst others, includes frequent updating of library online database with current information on the use of web applications, Current Awareness Services (CAS) on the availability of web-based resources in the library to encourage usage, adequate funding of academic libraries to enable purchase of relevant infrastructure, organizing training programmes for academic librarians, willingness of academic librarians to embrace novel technological trends, provision of stable electricity supply in academic libraries, provision of digital devices, etc.

Conclusion

In this digital age, the great advances made by modern science and technology have speeded up information exchange and information distribution. Due to the tremendous growth and continuous development of technology, the role of librarians becomes more responsive in making the users techno-savvy. Therefore, the adoption of web based information services has become necessary in order to meet the information needs of 21st century library users are technologically-oriented. Interestingly, many organizations are now using the web-based information services for their everyday business activities, including mail systems, file systems as well as network devices such as firewall and routers. This development extends to educational sector; Use of web-based environment has introduced new and useful roles to librarians and information professionals.

Findings of this study have established that there are purposes for the adoption of web based information service in academic libraries. The study also established that there are web based services are available in academic libraries, although the extent to which these services are rendered is low. This is because there are challenges to the adoption of web based services in

academic libraries. This study revealed some measures for improvement of existing web-based resources and services in academic libraries.

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